STEM Spotlight

Flying High with STEM Learning

QUADCOPTER CLASSROOM GRANT

The mission is simple. All you must do is design an attachment for a quadcopter that would allow for the transportation of supplies to a designated area.

Students at the Advanced Learning Center were given this task after their teacher received a Classroom Grant from the Utah STEM Action Center for quadcopters. Students used the design process and engineering notebooks to conduct research, brainstorm, create prototypes to test and produce designs using 3D CAD software. Once designs were completed students were able to 3D print their final designs.

"This project not only allowed students to use the design process, but also to incorporate the use of the 3D printer, so that students were learning about designing for manufacturing as well," said Khristen Massic, an engineering teacher at the Advanced Learning Center.

The PreK-12 Classroom Grant is available for Utah educators and administrators to apply for funding to improve student understanding of and learning experiences in science, technology, engineering and mathematics (STEM). Awards are granted for innovative and creative projects in STEM subjects. These projects focus on classroom-level instruction that is unique to the needs of the students. The grant will open again August 14, 2017, learn more at https://stem.utah.gov/programs/prek12-classroom-grant/

Learn more about STEM Action Center programs at **stem.utah.gov**

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"We normally have design challenges in this class, but we usually don't get beyond the conceptual design due to limited materials, equipment, time, and cost," Massic said. "While the mini-quadcopters are relatively inexpensive, my class sizes are getting larger and it is difficult for me to afford buying the necessary quadcopters in order for each group to have their own quadcopter."

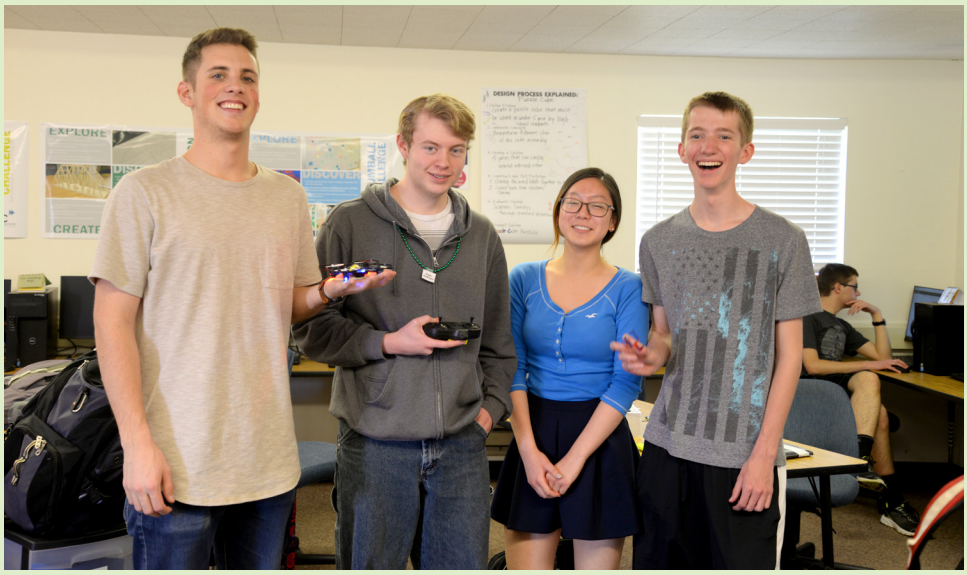
Massic says that giving students these hands-on learning opportunities takes what students are learning in the classroom and makes it more applicable to real life.

"I thought there would be one simple idea but there were lots and the ones that took the longest to print were usually the best," said Tiffany Chan, a 10th grade student in Massic's class. "With real life experiences like this you learn a lot more instead of just doing lessons and lectures. Engineering is one of those careers where you have to get out there and learn in order to really understand it."

Students were able to learn various problem-solving skills using the engineering design process to produce a solution that was tangible and fun.

Students in the class were put into groups of four students and once they completed the attachment for their quadcopters they were able to compete against other groups in the class. After each competition, students were able to refine their design if it did not function properly.

"Making the hook is like trial and error with a lot of problem solving along the way because you have to figure out the right solution," said Matthew Stone, a 12th grade student in Massic's class. "Nothing goes as planned and you learn because engineering isn't easy."



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